GUTOR Register Map

Notes:
1. 16-bit registers are transmitted MSB first (i.e. big-endian).
2. "Absolute Starting Register Address" = 0 (the column heading used in this table) is equivalent to "Register 40001 for holding registers" in Modicon terminology, which is address zero when transmitted over the wire.
3. Data format is in 0xFFFF.(hexadecimal)
4. Reserved Fields are filled with 0.

The Gutor modbus interface can support modbus queries with the following restrictions:
1. Only Modbus RTU is supported.
2. Baud rates of 9600 and 19200 with parity settings of odd,even and none are supported.
3. Modbus function code 1 and 3 are serviced.

Modicon Standard Register Number	Absolute Starting Register Address, (Hexadecimal)	Absolute Starting Register Address, (Decimal)	Bit	Data Point	Length # registers	Type	Multiply Reading By:	Divide Reading By:	Valid Response	Supported Modules
System Rating										
40001	0x0000	0		System load in percent (% of VA) : Percent of UPS power capacity presently used.	1	UINT16		10	%VA	
40002	0x0001	1		System load in percent (% of W) : Percent of UPS power capacity presently used.	1	UINT16		10	%W	
40003	0x0002	2		Apparent system load	1	UINT16		10	kVA	
40004	0x0003	3		Real system load	1	UINT16		10	kW	
40005	0x0004	4		Output apparent power L1	1	UINT16		10	kVA	
40006	0x0005	5		Output apparent power L2	1	UINT16		10	kVA	
40007	0x0006	6		Output apparent power L3	1	UINT16		10	kVA	
40008	0x0007	7		Output Real power L1	1	UINT16		10	kW	
40009	0x0008	8		Output real power L2	1	UINT16		10	kW	
40010	0x0009	9		Output real power L3	1	UINT16		10	kW	
40011	0x000A	10		Output power factor L1	1	UINT16		100	1	
40012	0x000B	11		Output power factor L2	1	UINT16		100	1	
40013	0x000C	12		Output power factor L3	1	UINT16		100	1	
40014	0x000D	13			1	UINT16				
40015	0x000E	14		Total output load in percent (% of VA) : only available with a redundant system.	1	UINT16		10	%VA	
40016	0x000F	15		Total output load in percent (% of W) : only available with a redundant system.	1	UINT16		10	%W	
40017	0x0010	16		Total output load (VA) : only available with a redundant system.	1	UINT16		10	VA	
40018	0x0011	17		Total output load (W) : only available with a redundant system.	1	UINT16		10	W	
Output										
40019	0x0012	18		Output Frequency	1	UINT16		10	Hz	
40020	0x0013	19		Output Voltage L1(phase L1 to L2)	1	UINT16		10	Volts	
40021	0x0014	20		Output Voltage L2(phase L2 to L3)	1	UINT16		10	Volts	
40022	0x0015	21		Output Voltage L3(phase L3 to L1)	1	UINT16		10	Volts	
40023	0x0016	22		Output current L1	1	UINT16		10	Ampere	
40024	0x0017	23		Output current L2	1	UINT16		10	Ampere	
40025	0x0018	24		Output current L3	1	UINT16		10	Ampere	
40026	0x0019	25			8					
Input										
40035	0x0022	34		Input Frequency	1	UINT16		10	Hz	
40036	0x0023	35		Input Voltage L1(phase L1 to L2)	1	UINT16		10	Volts	
40037	0x0024	36		Input Voltage L2(phase L2 to L3)	3	UINT16		10	Volts	
40038	0x0025	37		Input Voltage L3(phase L3 to L1)	1	UINT16		10	Volts	
40039	0x0026	38			6					
40045	0x002C	44		Input current L1	1	UINT16		10	Ampere	

40046	0x002D	45		Input current L2	1	UINT16		10	Ampere	
40047	0x002E	46		Input current L3	1	UINT16		10	Ampere	
40048	0x002F	47			9					
Bypass										
40057	0x0038	56		Input Bypass Frequency	1	UINT16		10	Hz	
40058	0x0039	57		Input Bypass Voltage L1(phase L1 to L2) (0 if not available)	1	UINT16		10	Volts	
40059	0x003A	58		Input Bypass Voltage L2(phase L2 to L3) (0 if not available)	1	UINT16		10	Volts	
40060	0x003B	59		Input Bypass Voltage L3(phase L3 to L1) (0 if not available)	1	UINT16		10	Volts	
40061	0x003C	60		Input Bypass current L1 (0 if not available)	1	UINT16			Ampere	
40062	0x003D	61		Input Bypass current L2 (0 if not available)	1	UINT16			Ampere	
40063	0x003E	62		Input Bypass current L3(0 if not available)	1	UINT16			Ampere	
40064	0x003F	63			6					
Battery										
40071	0x0046	70		Battery Current	1	UINT16		10	Ampere	
40072	0x0047	71		Battery Voltage	1	UINT16		10	Volts	
40073	0x0048	72			18					
Temperature										
40090	0x0046	89		Temperature Sensor 1(if available)	1	UINT16		1	°C	
40091	0x0047	90		Temperature Sensor 2(if available)	1	UINT16		1	°C	
40092	0x0059	91		Temperature Sensor 3(if available)	1	UINT16		1	°C	
40093	0x005A	92		Temperature T001(if available)	1	UINT16		1	°C	
40094	0x005B	93		Temperature T401(if available)	1	UINT16		1	°C	
40095	0x005C	94		Temperature T501(if available)	1	UINT16		1	°C	
40096	0x005D	95			149					
Digital Values										
40245	0x00F4	244		read coil registers 001 - 016 : The registers are lined up the following way 16-13 12-9 8-5 4-1	1	UINT16		1		
40246	0x00F5	245		read coil registers 017 - 032	1	UINT16		1		
40247	0x00F6	246		read coil registers 033 - 048	1	UINT16		1		
40248	0x00F7	247		read coil registers 049 - 064	1	UINT16		1		
40249	0x00F8	248		read coil registers 065 - 080	1	UINT16		1		
40250	0x00F9	249		read coil registers 081 - 096	1	UINT16		1		
40251	0x00FA	250		read coil registers 097 - 112	1	UINT16		1		
40252	0x00FB	251		read coil registers 113 - 128	1	UINT16		1		
40253	0x00FC	252		read coil registers 129 - 144	1	UINT16		1		
40254	0x00FD	253		read coil registers 145 - 160	1	UINT16		1		
40255	0x00FE	254		read coil registers 161 - 176	1	UINT16		1		
40256	0x00FF	255		read coil registers 177 - 192	1	UINT16		1		
40257	0x0100	256		read coil registers 193 - 208	1	UINT16		1		

Notes:
1. 16-bit registers are transmitted MSB first (i.e. big-endian).
2. "Absolute Starting Register Address" = 0 (the column heading used in this table) is equivalent to "Register 00001 for coil registers" in Modicon terminology, which is address zero when transmitted over the wire.
3. Data format is in 0xFFFF.(hexadecimal)
4. Reserved Fields are filled with 0.

The Gutor modbus interface can support modbus queries with the following restrictions:
1. Only Modbus RTU is supported.
2. Baud rates of 9600 and 19200 with parity settings of odd,even and none are supported.
3. Modbus function code 1 and 3 are serviced.
4. Data format is in boolean
5. Value of 1 indicated respective individual status or alarm is active.
6. Reserved Fields are filled with 0.

Modicon Standard Register Number	Absolute Starting Register Address, (Hexadecimal)	Absolute Starting Register Address, (Decimal)	Bit	Data Point	Length # registers	Type	Multiply Reading By:	Divide Reading By:	Valid Response	Supported Modules
1	0x0000	0			22					
System Status / SBS Status										
23	0x0016	22		System switched on	1	BOOLEAN			1 : System in standby 0 : System is not in standby	
24	0x0017	23		Standby	1	BOOLEAN			1 : System in Standby 0 : System is not in standby	
25	0x0018	24		Normal Operation	1	BOOLEAN			1 : the system is in normal operation 0 : the system is not in normal operation.	
26	0x0019	25		Battery operation	1	BOOLEAN			1 : the system is in battery operation 0 : the system is not in battery operation.	
27	0x001A	26		Bypass operation	1	BOOLEAN			1 : Static bypass switch ON 0 : Static bypass switch OFF.	
28	0x001B	27		Initial charge	1	BOOLEAN			1 : The battery charger has been set to 'Initial charge' mode.The batteries are charged with initial charge voltage.	
29	0x001C	28		Float charge	1	BOOLEAN			1 : The battery charger has been set to 'Initial charge' mode.The batteries are charged with initial charge voltage.	
30	0x001D	29		Boost charge	1	BOOLEAN			1 : The battery charger has been set to 'Float charge' mode.The batteries are charged with float charge voltage.	
31	0x001E	30		Cyclic charge	1	BOOLEAN			1 : The battery charger has been set to 'Cyclic charge' mode.The batteries are charged with cyclic charge voltage.	
32	0x001F	31			7					
39	0x0026	38		Temporary Static bypass	1	BOOLEAN			1 : The system is in static bypass operation due to a fault.	
40	0x0027	39		Requested Static bypass	1	BOOLEAN			1 : The system is in static bypass operation due to a user request.	
41	0x0028	40		SBS Error	1	BOOLEAN				
42	0x0029	41			12					
Breaker Status / MBS Status										

54	0x0035	53		Q001 closed	1	BOOLEAN			1 : The rectifier mains input switch Q001 is closed 0 : The rectifier mains input switch Q001 is open.	
55	0x0036	54			1					
56	0x0037	55		Q201 closed	1	BOOLEAN			1 : The battery switch Q201 is closed 0 : The battery switch Q201 is Open.	
57	0x0038	56		Q501 closed	1	BOOLEAN			1 : The bypass mains input switch Q501 is closed 0 : The bypass mains input switch Q501 is open.	
58	0x0039	57		Q502 closed					1 : The bypass transformer output switch Q502 is closed 0 : The bypass transformer output switch Q502 is open.	
59	0x003A	58			1					
60	0x003B	59		Q611 closed	1	BOOLEAN			1 : The load output switch Q611 is closed 0 : The load output switch Q611 is open.	
61	0x003C	60			1					
62	0x003D	61		Q691 closed	1	BOOLEAN			1 : The SBS input switch Q691 is closed 0 : The SBS input switch Q691 is open.	
63	0x003E	62		Q692 closed	1	BOOLEAN			1 : The UPS output switch Q692 is closed 0 : The UPS output switch Q692 is open.	
64	0x003F	63			1					
65	0x0040	64		MBS: TEST	1	BOOLEAN			1 : The load is supplied from the bypass. The inverter output is separated from the load. The bypass input of the UPS is still supplied with bypass voltage.	
66	0x0041	65		MBS: BYPASS	1	BOOLEAN			1 : The load is supplied from the bypass. The inverter output is separated from the load. The bypass input of the UPS is not supplied with bypass voltage.	
67	0x0042	66		MBS: AUTO	1	BOOLEAN			1 : The load is supplied from the inverter, normal or battery operation.	
Temperature Status / Fan Failure / PM HW Failure										
68	0x0043	67		Overtemperature	1	BOOLEAN			1 : Overtemperature in PM or transformers detected (if available)	
69	0x0044	68			2	BOOLEAN				
71	0x0046	70		T001 Overtemperature	1	BOOLEAN			1 : Overtemperature on the rectifier mains transformer.	
72	0x0047	71		T401 Overtemperature	1	BOOLEAN			1 : Overtemperature on the output transformer.	
73	0x0048	72		T501 Overtemperature	1	BOOLEAN			1 : Overtemperature on the bypass transformer.	
74	0x0049	73		Battery temperature warning	1	BOOLEAN			1 : The battery temperature exceeds the programmed warning level.	
75	0x004A	74		Battery temperature shutdown	1	BOOLEAN			1 : The battery temperature exceeds the programmed shutdown level.	
76	0x004B	75		Temperature 1 warning	1	BOOLEAN			1 : The temperature sensor, connected to the external connection board, is over the temperature warning level	
77	0x004C	76		Temperature 2 warning	1	BOOLEAN			1 : The temperature sensor, connected to the external connection board, is over the temperature warning level	
78	0x004D	77		Temperature 4 warning	1	BOOLEAN			1 : The temperature sensor, connected to the external connection board, is over the temperature warning level	
79	0x004E	78		T001 Temperature sensor fault	1	BOOLEAN			1 : The mains input transformer temperature sensor PT100 is not connected or shorted	
80	0x004F	79		T401 Temperature sensor fault	1	BOOLEAN			1 : The output transformer temperature sensor PT100 is not connected or shorted	
81	0x0050	80		T501 Temperature sensor fault	1	BOOLEAN			1 : The bypass transformer temperature sensor PT100 is not connected or shorted	

82	0x0051	81		Fan failure	1	BOOLEAN			1 : Fan failure in the UPS system (transformer-, SBS- or power module- fan)	
83	0x0052	82			6					
Faults										
89	0x0058	88		Emergency Power Off (EPO)	1	BOOLEAN			1 : The digital input of Emergency Power Off (EPO) is activated (contact open) or the EPO wiring is disconnected	
90	0x0059	89			1					
91	0x005A	90		PSU fault	1	BOOLEAN			1 : General PSU fault (Alarm if any PSU fault occur).	
92	0x005B	91		General Mains fault	1	BOOLEAN			1 : General Mains fault (Alarm if any Mains fault occur)	
93	0x005C	92		Mains RMS fault	1	BOOLEAN			1 : The rectifier mains voltage is out of tolerance.	
94	0x005D	93		Mains input RMS fault	1	BOOLEAN			1 : The rectifier mains voltage on primary side of the input transformer is out of tolerance. This event is only active if a transformer is installed.	
95	0x005E	94			6					
101	0x0064	100		General Bypass fault	1	BOOLEAN			1 : General Bypass fault (Alarm if any Bypass fault occurs)	
102	0x0065	101		Bypass RMS fault	1	BOOLEAN			1 : The bypass voltage is out of tolerance.	
103	0x0066	102		Bypass input RMS fault	1	BOOLEAN			1 : The bypass mains voltage on primary side of bypass transformer is out of tolerance. This event is only active if a transformer and the bypass measurement is installed	
104	0x0067	103			4					
108	0x006B	107		General Output fault	1	BOOLEAN			1 : General Output fault (Alarm if any Output fault occurs, overload or voltage issue).	
109	0x006C	108		Output RMS fault	1	BOOLEAN			1 : The output voltage on the secondary side of the output transformer is out of tolerance.	
110	0x006D	109		Inverter output RMS fault	1	BOOLEAN			1 : The UPS output voltage is out of tolerance.	
111	0x006E	110			5					
116	0x0073	115		Output overloaded	1	BOOLEAN			1 : The UPS output is overloaded (>100%) or the inverter current limiter is active.	
117	0x0074	116			2					
119	0x0076	118		Battery current positive	1	BOOLEAN			0: negative; the battery is discharged 1: positive; the battery is charged.	
120	0x0077	119			1					
121	0x0078	120		Battery: Warning or error	1	BOOLEAN			1 : The battery voltage is out of tolerance or the runtime is too short.	
122	0x0079	121		Battery earth fault	1	BOOLEAN			1 : The interface has detected a battery earth fault (if available).	
123	0x007A	122		High Battery shutdown	1	BOOLEAN			1 : Battery voltage above the high battery shut-down level.	
124	0x007B	123		High Battery warning	1	BOOLEAN			1 : Battery voltage above the 'High battery warning' level (no warning in battery operation).	
125	0x007C	124		Battery discharged	1	BOOLEAN			1 : Battery voltage below the 'Low battery warning' level.	
126	0x007D	125		Low Battery shutdown	1	BOOLEAN			1 : Battery voltage below 'Low battery shut-down' level.	
127	0x007E	126		Battery earth fault positive	1	BOOLEAN			1 : The interface has detected a battery positive earth fault (if available).	
128	0x007F	127		Battery earth fault negative	1	BOOLEAN			1 : The interface has detected a battery negative earth fault (if available).	
129	0x0080	128			11					
140	0x008B	139		Rectifier fault / error	1	BOOLEAN			1 : Rectifier or charger is off because of a fault.	
141	0x008C	140		00141 B Inverter fault / error	1	BOOLEAN			1 : Inverter is off because of a fault	

142	0x008D	141			12					
External Connection Board Input Status										
154	0x0099	153		Input status Ecb 1	1	BOOLEAN			0 = open 1 = closed	
155	0x009A	154		Input status Ecb 2	1	BOOLEAN			0 = open 1 = closed	
Relay Board 1 Input Status										
156	0x009B	155		Input status RB1.1	1	BOOLEAN			0 = open 1 = closed	
157	0x009B	156		Input status RB1.2	1	BOOLEAN			0 = open 1 = closed	
158	0x009B	157		Input status RB1.3	1	BOOLEAN			0 = open 1 = closed	
159	0x009B	158		Input status RB1.4	1	BOOLEAN			0 = open 1 = closed	
160	0x009B	159		Input status RB1.5	1	BOOLEAN			0 = open 1 = closed	
161	0x009B	160		Input status RB1.6	1	BOOLEAN			0 = open 1 = closed	
162	0x009B	161		Input status RB1.7	1	BOOLEAN			0 = open 1 = closed	
163	0x009B	162		Input status RB1.8	1	BOOLEAN			0 = open 1 = closed	
164	0x009C	163			8					
HMI Alarm LED Status										
172	0x00AB	171		HMI alarm LED 1	1	BOOLEAN			0 = off 1 = on	
173	0x00AC	172		HMI alarm LED 2	1	BOOLEAN			0 = off 1 = on	
174	0x00AD	173		HMI alarm LED 3	1	BOOLEAN			0 = off 1 = on	
175	0x00AE	174		HMI alarm LED 4	1	BOOLEAN			0 = off 1 = on	
176	0x00AF	175		HMI alarm LED 5	1	BOOLEAN			0 = off 1 = on	
177	0x00B0	176		HMI alarm LED 6	1	BOOLEAN			0 = off 1 = on	
178	0x00B1	177		HMI alarm LED 7	1	BOOLEAN			0 = off 1 = on	
179	0x00B2	178		HMI alarm LED 8	1	BOOLEAN			0 = off 1 = on	
180	0x00B3	179		HMI alarm LED 9	1	BOOLEAN			0 = off 1 = on	
181	0x00B4	180		HMI alarm LED 10	1	BOOLEAN			0 = off 1 = on	
182	0x00B5	181		HMI alarm LED 11	1	BOOLEAN			0 = off 1 = on	
183	0x00B6	182		HMI alarm LED 12	1	BOOLEAN			0 = off 1 = on	
184	0x00B7	183		HMI alarm LED 13	1	BOOLEAN			0 = off 1 = on	
185	0x00B8	184		HMI alarm LED 14	1	BOOLEAN			0 = off 1 = on	
186	0x00B9	185		HMI alarm LED 15	1	BOOLEAN			0 = off 1 = on	
External Connection Board Output Status										
187	0x00BA	186		ECB Common Alarm	1	BOOLEAN			0 = open 1 = closed	
188	0x00BB	187		ECB Output 1	1	BOOLEAN			0 = open 1 = closed	
189	0x00BC	188		ECB Output 2	1	BOOLEAN			0 = open 1 = closed	
Relay Board 1 Output Status										

190	0x00BD	189		Output status RB1.1	1	BOOLEAN			0 = open 1 = closed	
191	0x00BE	190		Output status RB1.2	1	BOOLEAN			0 = open 1 = closed	
192	0x00BF	191		Output status RB1.3	1	BOOLEAN			0 = open 1 = closed	
193	0x00C0	192		Output status RB1.4	1	BOOLEAN			0 = open 1 = closed	
194	0x00C1	193		Output status RB1.5	1	BOOLEAN			0 = open 1 = closed	
195	0x00C2	194		Output status RB1.6	1	BOOLEAN			0 = open 1 = closed	
196	0x00C3	195		Output status RB1.7	1	BOOLEAN			0 = open 1 = closed	
197	0x00C4	196		Output status RB1.8	1	BOOLEAN			0 = open 1 = closed	
198	0x00C5	197		Output status RB1.9	1	BOOLEAN			0 = open 1 = closed	
199	0x00C6	198		Output status RB1.10	1	BOOLEAN			0 = open 1 = closed	
200	0x00C7	199		Output status RB1.11	1	BOOLEAN			0 = open 1 = closed	
201	0x00C8	200		Output status RB1.12	1	BOOLEAN			0 = open 1 = closed	
202	0x00C9	201		Output status RB1.13	1	BOOLEAN			0 = open 1 = closed	
203	0x00CA	202		Output status RB1.14	1	BOOLEAN			0 = open 1 = closed	
204	0x00CB	203		Output status RB1.15	1	BOOLEAN			0 = open 1 = closed	
205	0x00CC	204		Output status RB1.16	1	BOOLEAN			0 = open 1 = closed	